



CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005



Job No.: CTCE/BBMP/BBU/W.No.01/WMM/Gradation/2017-18

11.11.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
Sample ID	: Wet Mix Macadam
Technical Reference	: IS 2386 (part-1)1963 (RA-2011)
Date of Testing	: 11.11.2017

Oven Dry Wt (gm): 5000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	150	150	3.0	97.0	95-100
22.4	1590	1740	34.80	65.20	60-80
11.2	1050	2790	55.80	44.20	40-60
4.75	580	3370	67.40	32.60	25-40
2.36	480	3850	77.00	23.00	15-30
0.600	495	4345	86.90	13.10	8-22
0.075	525	4870	97.40	2.60	0-8

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/BBU/W.No.01/WMM/AIV/2017-18

11.11.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Wet Mix Macadam
Technical Reference	: IS : 2386(Part -4)-1963 (RA-2011)
Date of Testing	: 11.11.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	387	21.50
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	303	
4	Aggregate Impact value = percent fines $100 * (W_2/W_1)\%$	21.30	21.71	

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/BBU/W.No.01/WMM/Shape.T/2017-18

11.11.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Wet Mix Macadam
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	: 11.11.2017

Sl.No.	Description	Result
1	Flakiness Index	11.64%
2	Elongation Index	13.20%
3	Combined Flakiness & Elongation Index	24.84%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/BBU/W.No.01/CSR-11/487a/CEMENT/2017-18

Date: 11.11.2017

TEST REPORT ON CEMENT

* Customer	:	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	:	Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	:	Cement
Sample Received on	:	09.11.2017
Period of Testing	:	09.11.2017 to 11.11.2017

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988 (RA-2014)	27.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	185 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	450 Minutes	Not More than 600 Minutes
3	Soundness by Le Chatelier Method	IS-4031 (Part-3) 1988 (RA-2014)	0.75 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/BBU/W.No.01/CSR-11/487a/SAND-Gradation/2017-18

11.11.2017

TEST REPORT ON SIEVE ANALYSIS OF FINE AGGREGATES

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Fine Aggregates
Technical Reference	: IS : 2386 (Part 1) - 1963 (RA-2011)
Sample Received On	: 09.11.2017
Date of Testing	: 11.11.2017

Total Wt. of Aggregates in gms = 1000

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2011)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	95.50	90-100	90-100	90-100	95-100
2.36	77.50	60-95	75-100	85-100	95-100
1.18	59.00	30-70	55-90	75-100	90-100
600 Micron	32.50	15-34	35-59	60-79	80-100
300 Micron	13.50	5-20	8-30	12-40	15-50
150 Micron	4.30	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/BBU/W.No.01/CSR-11/487a/AGG/GR/2017-18

11.11.2017

TEST REPORT ON SIEVE ANALYSIS OF COARSE AGGREGATES

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Coarse Aggregates (40mm)
Technical Reference	: IS : 2386 (Part 1) -1963 (RA-2011)
Sample Received on	: 09.11.2017
Date of Testing	: 11.11.2017

Total Wt. of Aggregates in gms= 5000

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2011)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.14	95-100	85-100
20	32.08	30-70	0-20
10	13.58	10-35	0-5
4.75	1.54	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under graded specific limits.

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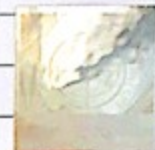


Job No. CTCE/BBMP/BBU/W.No.01/CSR-11/487a/Cube/2017-18

12.01.2018

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of the work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Cement Concrete
Technical Reference	: IS: 516-1959 (RA-2013)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm ²
* Grade of Concrete	: M ₂₀
Compressive Strength as on	: 28 th day
Sample Received on	: 12.01.2018



Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm ²)
1	15.12.2017	12.01.2018	8.296	483.5	21.49
2	15.12.2017	12.01.2018	8.384	508.6	22.60
3	15.12.2017	12.01.2018	8.412	516.4	22.95

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VIDYARANI P.K.
Technical Manager

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/AIV/2017-18

15.12.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Hot mix plant, Bangalore.
* Type of Mix	: Bituminous Concrete
Technical Reference	: IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	: 15.12.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	78	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	302	
4	Aggregate Impact value = percent fines $100 \times (W_2/W_1)$ percent	20.58	20.94	20.76

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/Shape.T/2017-18

15.12.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	: Hot mix plant, Bangalore
Technical Reference	: IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	: Bituminous Concrete
Date of Testing	: 15.12.2017

SLNo.	Description	Result
1	Flakiness Index	11.05%
2	Elongation Index	13.27%
3	Combined Flakiness & Elongation Index	24.32%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/Stripping/2017-18



15.12.2017

TEST REPORT ON STRIPPING VALUE OF ROAD AGGREGATES (STATIC IMMERSION TEST)

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
Technical Reference	: IS: 6241
* Type of Mix	: Bituminous Concrete
Date of Testing	: 15.12.2017

Type of binder : 60/70
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/Sp_Wa/2017-18

15.12.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	: Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	: Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	: EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	: Hot mix plant, Bangalore
Technical Reference	: IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	: Bituminous Concrete
Date of Testing	: 15.12.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2004	2005	2006	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1251	
4	Weight of saturated surface dry aggregate in air	W_3 g	2003	2004	2005	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_s)$ g	764	766	754	
6	Weight of oven dried aggregate	W_4 g	1996	1995	1996	
7	Specific Gravity	$W_4 / (W_3 - W_s)$	2.613	2.604	2.647	2.621
8	Apparent Specific gravity	$W_4 / (W_4 - W_s)$	2.637	2.635	2.679	2.650
9	Water Absorption	$((W_3 - W_4) * 100) / W_4$	0.35%	0.45%	0.45%	0.42%

*Information is furnished by the Customer/Representative.

Comments:

Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CTCE/BBMP/BBU/W.No.01/BC/Bitumen/2017-18

15.12.2017

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE As per IS2386 and IRC:SP:11-1984

* Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* Agency	Mr. B.B. Umesh, (SMLP Asphalts) Bettahalasoor Village and Post, Bangalore.
* Name of Work	Providing pot hole filling at Kempegowda Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	EE/YNK.D/W.O/123/2016-17 Dated: 06.03.2017
* Sample ID	Pothole filling to roads in Ward No.01
DATE OF TESTING	15.12.2017

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.8	469.8
3. Weight of Asphalt and Mineral matter Extracted, g	30.2	30.2
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.2	30.2
7. Bitumen content in %	6.04	6.04
8. Average	6.04	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOB MIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	82.26	84.65	79-100
9.5	77.65	86.35	70-88
4.75	56.65	62.25	53-71
2.36	45.25	46.65	42-58
1.18	36.65	42.15	34-48
0.6	28.25	30.22	26-38
0.3	22.62	26.32	18-28
0.15	15.24	16.25	12-20
0.075	6.25	5.58	4-10

*Information is furnished by the Customer/Representative.

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